भारतीय मानक
Indian Standard

IS 3495 (Part 4) : 2019

निर्माण के लिए पक्की मिट्टी की ईंट — परीक्षण पद्धति

भाग 4 विकुंचता ज्ञात करना

(चौथा पुनरीक्षण)

Burnt Clay Building Bricks — Methods of Tests

Part 4 Determination of Warpage

(Fourth Revision)

ICS 91.100.25

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Clay and Stabilized Soil Products for Construction Sectional Committee, CED 30

FOREWORD

This Indian Standard (Part 4) (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Clay and Stabilized Soil Products for Construction Sectional Committee had been approved by the Civil Engineering Division Council.

Standard methods of testing burnt clay bricks are essential adjunct to the various burnt clay brick specifications.

This standard (Part 4) was first published in 1966 and subsequently revised in 1973, 1976 and 1992. This standard in different parts lays down the procedure for the tests to evaluate the physical properties of different types of burnt clay bricks. Earlier, all the tests to evaluate the physical properties of burnt clay bricks were covered in one standard but for facilitating the use of this standard and future revisions, the revised standard has been brought out in different parts, each part covering different tests. The other parts in this series are:

Part 1	Determination of compressive strength
Part 2	Determination of water absorption
Part 3	Determination of efflorescence

This standard (Part 4) covers determination of warpage in burnt clay bricks. Efforts have also been made to update the contents.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

In reporting the result of a test or analysis made in accordance with this standard, if the final value observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 ‘Rules for rounding off numerical values (*revised*)’.

Indian Standard

BURNT CLAY BUILDING BRICKS — METHODS OF TESTS

PART 4 DETERMINATION OF WARPAGE

(Fourth Revision)

1 SCOPE

This standard (Part 4) covers the method of determination of warpage of burnt clay building bricks.

2 REFERENCE

The following standard contain provisions which, through reference in this text, constitute provisions of this standards. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

IS No.	*Title*
5454 : 1978	Methods of sampling of clay building bricks (*first revision*)

3 GENERAL

3.1 The dimension shall be measured to the nearest 1 mm.

3.2 All apparatus and testing equipment shall be calibrated at frequent intervals, as applicable to the respective testing equipment.

3.3 The number of specimens for the test shall be selected according to IS 5454.

4 METHOD

4.1 Measuring Instrument

a) A steel rule graduated from one end in 0.5 mm divisions. Alternatively, a steel measuring wedge 60 mm in length, 15 mm in width and 15 mm in thickness at one end and tapered, starting at a line 15 mm from one end to zero thickness at the other end. The wedge shall be graduated in 0.5 mm divisions and numbered to show the thickness of the wedge between the base *AB* and the slope *AC* (*see* Fig. 1).

b) *Flat surface* of steel or glass, not less than 300 mm × 300 mm in area and plane to within 0.02 mm.

c) A soft bristle brush.

4.2 Pre-conditioning

Remove by brushing any dirt adhering to the surface of brick.

4.3 Testing

4.3.1 *For Concave Warpage*

Place the *flat surface* along the concave surface to be measured selecting the location that gives the greatest departure from straightness. Measure the greatest distance of the brick surface from the *flat surface* by a steel rule or wedge.

4.3.2 *For Convex Warpage*

Place the brick on the *flat surface* with the convex surface in contact with the *flat surface*. Measure the distance from flat surface to the four corners of the brick, and take the maximum of four measurements.

4.4 Report

The higher of the distance measured in **4.3.1** and **4.3.2** shall be reported as warpage.

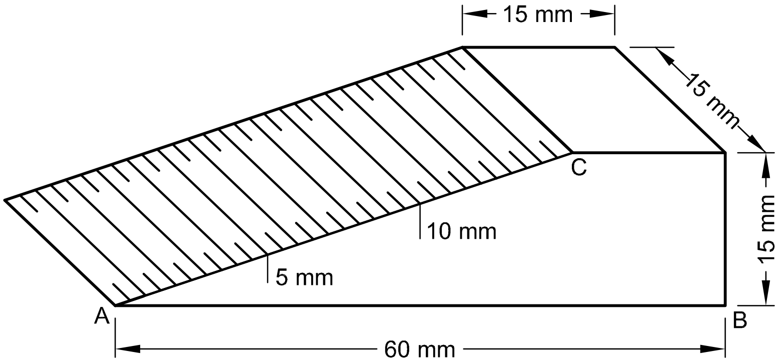

FIG. 1 MEASURING WEDGE

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Clay and Stabilized Soil Products for Construction Sectional Committee, CED 30

Organization	*Representative(s)*
CSIR-Central Building Research Institute, Roorkee	Shri A. K. Minocha (***Chairman***)
All India Brick & Tile Manufacturers Federation, New Delhi	Shri R. P. S. Chandel Shri R. K. Verma (*Alternate*)
Auroville Earth Institute, Auroville	Representative
Building Materials &Technology Promotion Council, New Delhi	Shri Sharad Gupta Shri Pankaj Gupta (*Alternate*)
Central Pollution Control Board, New Delhi	Shri B. Vinod Babu
Central Power Research Institute, Bengaluru	Representative
Central Public Works Department, New Delhi	Chief Engineer (CSQ) Shri Mathura Prasad (*Alternate*)
Central Soil and Materials Research Station, New Delhi	Shri U. S. Vidyarthi Shri Raj Kumar (*Alternate*)
CSIR-Advanced Materials & Processes Research Institute, Bhopal	Dr R. K. Morchhale Dr Manish Mudgal (*Alternate*)
CSIR-Central Building Research Institute, Roorkee	Shri A. K. Minocha Shri L. P. Singh (*Alternate*)
CSIR-Central Glass & Ceramic Research Institute, Kolkata	Dr Parvesh Agrawal Shrimati Asha T. Anil (*Alternate*)
CSIR-North-East Institute of Science and Technology, Jorhat	Dr Pinaki Sengupta
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Hindustan Construction Company Ltd, Mumbai	Shri Satish Kumar Sharma Shri Rajiv Surekha (*Alternate*)
Housing and Urban Development Corporation Limited, New Delhi	Shri Akhilesh Kumar Shri Surendra Kumar (*Alternate*)
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Int Nirmata Parishad, Varanasi	Representative
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Ministry of Science & Technology, New Delhi	Shri Raj Kumar Joshi Shri Pawan Kumar (*Alternate*)
National Building Construction Corporation, New Delhi	Shri Anil Malla Shri M. K. Chawla (*Alternate*)

Organization	*Representative(s)*
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NTPC Ltd, Noida	SHRI JITENDRA KUMAR SHRI MOHIT JHALANI (*Alternate*)
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Wienerberger India Private Ltd, Bengaluru	SHRI KUNDAN B. DIGHE SHRI D. J. JAGADEESHA (*Alternate*)
In personal capacity (*651/37 Ganga Envlave, Sainik Colony, Roorkee 247667*)	DR J. M. BHATNAGAR
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Amendments Issued Since Publication

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